

WHAT IS CLAIMED IS:

1. A method for assembling clutch plates comprising:
placing a plurality of segments side-by-side;
picking-up a required number of segments in a straight line; and
reconfiguring the segments in a circular configuration.
2. The method for assembling clutch plates of claim 1 further including placing a plurality of trapezoidal segments side-by-side.
3. The method for assembling clutch plates of claim 1 further wherein the step of picking-up a required number of segments in a straight line comprises picking-up each segment with a pick-up device.
4. The method for assembling clutch plates of claim 3 further wherein the step of picking-up a required number of segments in a straight line comprises picking-up each segment with a vacuum cup.
5. The method of claim 1 further including forcing the segment to travel along a track that has both a straight portion and a circular portion.
6. The method of claim 1 further including attaching one end of a segmented tooling assembly to a barrel which rotates to wrap the segmented tooling assembly around the barrel in a circular fashion.
7. The method of claim 6 further including further rotating the barrel to unwrap a segmented tooling assembly forcing the segments into a straight track.
8. The method of claim 1 further including attaching the center of a segmented tooling assembly to a barrel, attaching the two ends of the segmented tooling assembly to two arms to wrap the segmented tooling assembly around the barrel.
9. The method of claim 8 further including the two arms unwrapping the segmented tooling assembly from around the barrel.

10. The method of claim 1 further including attaching the center of a segmented tooling assembly to a barrel, and attaching the two ends of the segmented tooling assembly to two links to wrap the segmented tooling assembly around the barrel.

11. The method of claim 10 further including the two links unwrapping the segmented tooling assembly from around the barrel.

12. A clutch assembly comprising:

a plurality of segments placed side-by-side;

a pick-up head segmented such that the pick-up head can be configured in a straight line to pick up a required number of segments;
and

the pick-up head further being configurable in a circle to place the segments in a circular configuration.

13. The clutch assembly of claim 12 further wherein the segments are trapezoidal shaped.

14. The clutch assembly of claim 12 further wherein the pick-up head comprises a pick-up device on each segment.

15. The clutch assembly of claim 14 further wherein the pick-up device comprises a vacuum cup.

16. The clutch assembly of claim 12 further including a track that has both a straight portion and a circular portion for the segment to travel.

17. The clutch assembly of claim 12 further including a barrel to which one end of a segmented tooling assembly is attached, the barrel rotating to wrap the segmented tooling assembly around the barrel in a circular fashion.

18. The clutch assembly of claim 17 further wherein the barrel is further rotated to unwrap the segmented tooling assembly from around the barrel.

19. The clutch assembly of claim 12 further including a barrel to which the center of a segmented tooling assembly is attached, and two arms to which the two ends of the segmented tooling assembly are attached to wrap the segmented tooling assembly around the barrel.

20. The clutch assembly of claim 19 further wherein the two arms to which the two ends of the segmented tooling assembly are attached unwrap the segmented tooling assembly from around the barrel.

21. The clutch assembly of claim 12 further including a barrel to which the center of a segmented tooling assembly is attached, and two links to which the two ends of the segmented tooling assembly are attached to wrap the segmented tooling assembly around the barrel.

22. The clutch assembly of claim 21 further wherein the two links to which the two ends of the segmented tooling assembly are attached unwrap the segmented tooling assembly from around the barrel.

23. A method for assembling a clutch assembly comprising:
feeding a strip of friction material an assembly device;
cutting the strip of friction material into trapezoid segments;
feeding the segments in a linear configuration to a pick-up position;
transferring the segments into an assembly nest, the segments reconfiguring from the linear configuration to a circular configuration during this transfer;

placing a ring on top of the segments; and

bonding the assembly together.

24. The method for assembling a clutch assembly of claim 23 further including feeding two parallel strips of friction material into the assembly device placing.

25. The method for assembling a clutch assembly of claim 23 further including cutting the friction material into alternating left-hand, right-hand trapezoids.

26. The method for assembling a clutch assembly of claim 23 further including providing the friction material with an adhesive on one side, placing one track of segments adhesive side up below the ring and placing a second track of segments that is adhesive side down on top of the ring.

27. The method for assembling a clutch assembly of claim 23 further including placing an adhesive on the ring, and utilizing one track.